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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/644,386	08/19/2003	William F. Hartman	30108-1016 CIP	6143
5179	7590	09/15/2005	EXAMINER	
PEACOCK MYERS, P.C.			HARAN, JOHN T	
P O BOX 26927			ART UNIT	
ALBUQUERQUE, NM 87125-6927			PAPER NUMBER	
			1733	
DATE MAILED: 09/15/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/644,386

Applicant(s)

HARTMAN ET AL.

Examiner

John T. Haran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 September 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) 31-35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 1/22/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-30, drawn to a method for producing a high capacitance core element, classified in class 156.
  - II. Claims 31-35, drawn to a dielectric material integrally included in a printed circuit board, classified in class 361.
2. The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process such as using nanopowder that does not have a cubic crystalline structure.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

5. During a telephone conversation with Ms. Deborah Peacock on 9/3/05 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-30. Affirmation of this election must be made by applicant in replying to this Office action. Claims 31-35 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

#### ***Information Disclosure Statement***

7. The information disclosure statement (IDS) submitted on 6/22/04 has been considered by the examiner.

8. The information disclosure statement filed 6/22/04 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed.

No copies of the non-patent literature were provided. Accordingly they were struck through on the IDS and not considered.

***Specification***

9. The disclosure is objected to because of the following informalities: the first paragraph of the specification should be amended to indicate that 09/458,363 is now U.S. Patent 6,608,760 and that 09/305,253 is now U.S. Patent 6,616,794

Appropriate correction is required.

***Claim Objections***

10. Claims 1 and 17 are objected to because of the following informalities: the claims refer to the nanopowder particle size being less than .10 micron, whereas the specification uses the measurement of 100 nanometers. The two are equivalent but the same measurement should be utilized in both the specification and claims. Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paurus et al (U.S. Patent 5,162,977) in view of Lilley et al (U.S. Patent 4,764,493) and Lucas (U.S. Patent 5,870,274).

Regarding claims 1 and 17, Paurus et al is directed to a method for making a printed circuit board with a high capacitance integral capacitor core wherein the core is

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formed by impregnating a composite mixture of nanopowder and epoxy resin into a glass cloth to form a dielectric layer which is then disposed between two conductive layers (See abstract; Column 2, lines 7-16; Column 5, lines 41-46). Paurus et al is silent towards the nanopowder being hydrothermally prepared in a solvent and having a particle size less than .10 microns (100 nm) and the dielectric layer being less than 6 mil in thickness.

Lucas is also directed to a similar process as Paurus for forming a printed circuit board with a high capacitance integral capacitor core and teaches the thickness is preferably 0.5 – 4 mils and more preferably 0.5 – 2 mils (See abstract; Column 9, lines 61-67). One skilled in the art would have readily appreciated forming a dielectric layer of the customary size utilized in the art as taught in Lucas in the method of Paurus et al.

Lilley et al is directed to a method of making a barium titanate nanopowder using a hydrothermal process, which is then placed in a solvent to form a slurry/suspension for further use (Column 4, lines 41-57). Lilley et al also teaches that the barium titanate nanopowder has a particle size between .09 and .1 microns (Column 4, lines 58-60). One skilled in the art would have readily appreciated that Paurus teaches the nanopowder can be barium titanate (Column 3, lines 67-68) and that it would be obvious to provide the nanopowder formed in a known manner such as the slurry/suspension taught in Lilley et al.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the dielectric layer be less than 6 mil in thickness in the method of Paurus et al, as suggested in Lucas, and to provide the nanopowder as a

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slurry of hydrothermally prepared nanopowder in a solvent with a particle size of less than .10 microns, as suggested in Lilley et al.

Regarding claim 2, Paurus et al teaches curing the dielectric layer.

Regarding claims 3 and 18, Lilley et al teaches using an organic solvent.

Claims 4-16, and 19-30 are considered well known and conventional techniques in the art and it would have been obvious to perform such conventional techniques.

### ***Double Patenting***

13. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

14. Claims 1-30 are rejected under the judicially created doctrine of obviousness-

type double patenting as being unpatentable over claims 11-28 of U.S. Patent No.

6,616,794. Although the conflicting claims are not identical, they are not patentably

distinct from each other because claim 11 of the patent teaches all the limitations of

claims 1 and 17 of the application except that the particle size is less than 100 nm and

the dielectric layer has a thickness less than 6 mil. These two additional limitations are

taught in the specification of the patent as being the preferred particle size and

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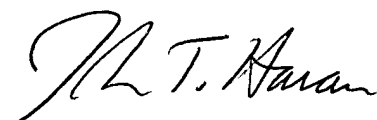
thickness and it would have been obvious to one of ordinary skill in the art at the time the invention was made to conform to the preferable parameters.

***Conclusion***

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John T. Haran whose telephone number is (571) 272-1217. The examiner can normally be reached on M-Th (8 - 5) and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John T. Haran  
Primary Examiner  
Art Unit 1733